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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/603,451	06/23/2000	Sundee Bajikar	04230.P9130	9990

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EXAMINER

ISSING, GREGORY C

ART UNIT PAPER NUMBER

3662

DATE MAILED: 11/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/603,451

Applicant(s)

BAJIKAR, SUNDEEP

Examiner

Gregory C. Issing

Art Unit

3662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 3662

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3-20, and 32-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biacs et al (6,229,478) in view of Kee et al or Batchelor et al.

Biacs et al teach the method and apparatus substantially as claimed for calculating correction information wherein there are a plurality of reference stations 102a-102d each having a GPS receiver for determining position 518 as well as a communication means 516 to link with a server station 100. The server is further coupled to a rover unit 104 whose corrected position is desired. The server station includes a differential correction engine 200, memory 202 and server component 204 for communicating with the reference and rover stations. The memory stores the differential correction data from the reference stations as well as other data, including satellite health, for use in differentially correcting the rover position as well as providing initialization data to the rover. The server station receives the rover position as well as measurements from the reference stations and uses the rover estimate of position to select a subset of the reference stations to use to provide differential corrections to the rover unit position, i.e., the nearest station(s), thus omitting/excluding other stations. Additionally, satellite health data may be transmitted from the reference stations to the server station thus providing integrity monitoring. Since the reference stations are capable of cellular communication, they are inherently directed to cellular communications base stations. The server station determines a subset of reference stations whose information may be used to provide initialization data as well as for differentially correcting the position of the rover station. The fact that the server station receives the satellite health data

Art Unit: 3662

from the reference stations leads to the fact that its use as an integrity monitoring station is fulfilled since the satellite health data inherently provides information with regard to the use/non-use of the satellite.

Biacs et al differ from the claimed subject matter since the differential corrections are determined at each of the reference stations and transmitted to the server station instead of the claimed central processing of differential data at the server station.

Kee et al ("Wide Area Differential GPS (WADGPS): Future Navigation System") teach the architecture of the well-known WADGPS on page 796, wherein it is disclosed that the GPS measurements taken at the reference stations are forwarded to the master station for calculation of the correction information that will be provided to the users. Additionally, Batchelor et al ("Design Features of D-GNSS Reference Stations") also teach the conventionality of forwarding GPS information from reference monitor stations to a master station in order to calculate correction information. Thus, it would have been obvious in view of the teachings of either one of Kee et al or Batchelor et al to modify Biacs et al by incorporating the centralization of the calculation of correction information in a central server in view of the conventionality of such as well as to reduce cost by not requiring additional processing at each of the plurality of monitoring reference stations.

Applicants' arguments that the prior art does not teach or suggest a "station selection module" nor an "integrity monitoring module" is not convincing since Biacs et al clearly suggest selecting information from the nearest reference station(s).

3. Claims 1, 3-20, and 32-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Loomis.

Loomis discloses a plurality of fiducial stations 11, each of which houses a GPS receiver for generating location information, each of which has a known location, and each of which may communicate with a central data processing station 19. The central data processing station receives the fiducial location information signals and determines a region wide model for correction

Art Unit: 3662

information of the GPS signals. The correction information is then communicated to mobile users 21 within the area. If the number N of fiducial stations exceeds 3, the central station can apply its correction model to N-3 of the fiducial stations to check for internal consistency or "goodness of fit" of the model such that if the model is not correct, the data used in the model may be rejected and/or re-determined (paragraph bridging col. 11-12). This would suggest to someone skilled in the art of GPS navigation at the time the invention was made, that if multiple combinations of groups of three satellites are available then multiple solutions may be determined, in much the same manner as conventional GDOP processing is provided in GPS. Thus, if the first group of three satellites does not provide an accurate solution at the fourth known station, then that solution may be rejected and a new combination of three satellites may be combined. This would be useful in typical urban areas wherein tall buildings may block satellites at an extreme end of the predetermined area and thus corrections related to that satellite would not be applicable. Thus, a satellite selection module is deemed to be taught/suggested by Loomis. Moreover, a subset of a set includes by definition the entire set; thus the selection of a subset of the plurality of stations includes the selection of all of the plurality of stations. The determination of a "goodness of fit" and its use in rejecting or re-determining the model meets the scope of an integrity monitoring module.

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 21-28 and 30-31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In claim 21, an integrity monitoring module excludes faulty location information from one or more base stations, yet

Art Unit: 3662

the correction information calculation module uses the information from all of the plurality of base stations. This appears to be contradictory, on the one hand faulty location information from a base station is excluded but ((what is it excluded from?)) on the other hand it is used. Furthermore, if the information is faulty, what is the purpose of such in determining accurate position information.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 21-28 and 30-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 21, the integrity monitoring module is said to "to detect and exclude" but the claim fails to clearly set forth what it is excluded from, particularly in light of the correction module which uses information from all of the base stations.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9. Akiyoshi et al (5,617,100) disclose a differential correction system including a plurality of base stations 30 of known location and including GPS receivers. The location information is forwarded to a network management 40 station which collects error information and adds area information indicative of the area over which particular error correction information is applicable thereto. The error/area information is forwarded to a relay station 60 for communication via satellite 50 to the mobile users 20.

10. Enge et al (5,621,646) disclose a wide area differential correction system wherein a network of reference stations, each of known location, includes a GPS receiver for determining location information. Each reference station further transmits pseudo-range residuals to a master station which generates corrections that are provided to mobile users via a communication link. The

Art Unit: 3662

master station, for example, uses a subset of at least one but not more than three of the reference stations when the network comprises more than four reference stations, in order to compute the correction information.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

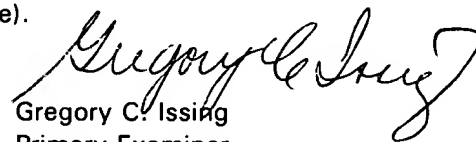
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory C. Issing whose telephone number is 703-306-4156. The examiner can normally be reached on Monday - Thursday 6:00 AM- 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on 703-306-4171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3662

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Gregory C. Issing
Primary Examiner
Art Unit 3662

gci